September 1976

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U.S. Soil Conservation

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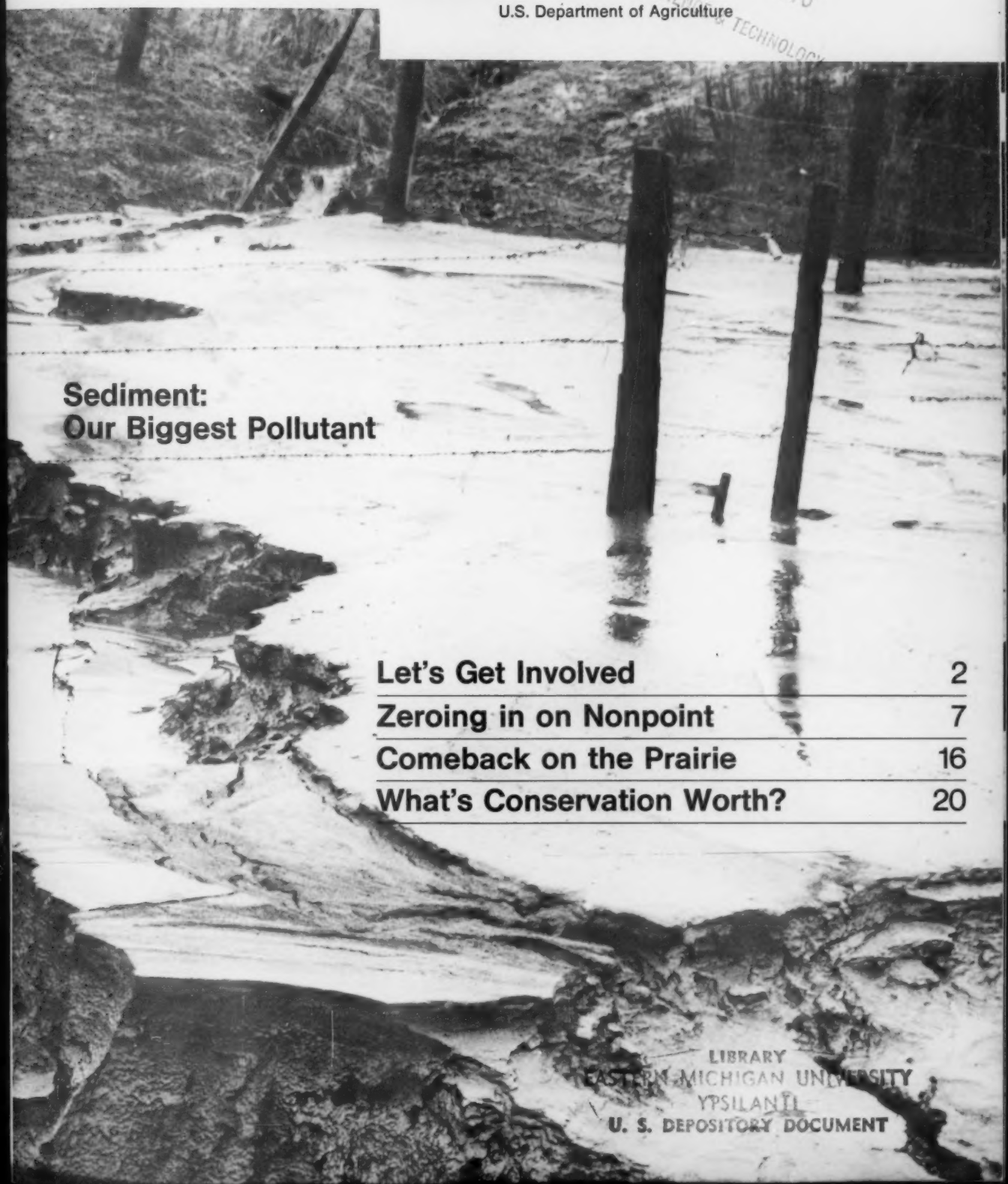

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To and From All the Public

From the Administrator

You don't have to tell those of us who deal with natural resource questions every day that the public is more interested than ever in our activities.

It's an encouraging sign, and one that we—as conservationists—need to encourage even more.

As the limits of America's natural resources become more apparent each day, public involvement—from individuals and organizations—is crucial to resource allocation.

It's not enough to post a notice, hold a hearing, send out a questionnaire. When we are in a project activity, we need—from the start—to seek out all the various concerned publics and bring them into the planning process.

We need to be as concerned about full public participation as we are about inventorying resources. It's important that we lay out what we know to all the public—and not just have it available to "those involved" or to "those who ask." As professional conservationists, we're in a position to recognize "resource tradeoffs," point out difficulties, and—if need be—resist poorly conceived approaches.

We are part of the public trust. We have a responsibility to assure that valuable resources are protected. At the same time, we have a responsibility to give a voice to everyone who has an interest in these resources. If we and the sponsoring groups go our own way—instead of seeking out all concerned audiences, providing information, and welcoming ideas—we may face costly delays, litigation, and dead ends.

The Soil Conservation Service came into being as an agency because of public involvement—a public that demanded something be done about the damage caused by duststorms and gaping gullies in the 1930's. Together with conservation districts, watershed project sponsors, and resource conservation and development councils, we've long sought widespread participation in conservation programs. Without it, SCS would not exist, for nearly all the programs we administer require the voluntary cooperation of private landowners and state, county, and municipal governments.

Yet, because natural resources are finite—and because some genuine interests or concerns in their use and management are not as readily seen or heard as others—an even broader base of public participation is needed in natural resource allocation. That's what we're going after. It's not going to be easy. But it's a challenge we're going to meet.

The wise use of America's natural resources cannot be guaranteed by any agency. It can be assured through what we encourage: full public involvement in determining how resources will be used.

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Soil Conservation

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Earl L. Butz
Secretary of Agriculture

R. M. Davis, Administrator
Soil Conservation Service

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Cover:
Sediment is—by volume—the greatest pollutant of the nation's water. Although more than 3 billion tons of sediment wash into streams each year, the problem is by no means irreversible. For stories on sediment control, see pages 7 and 21.

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OCT 5 1976

Accent on Action

How do you get things moving in a rural county? Residents of Granville County, North Carolina, are fast becoming experts in answering that question, for that's what they've been doing the last 6 years through their rural development panel.

by Anne Zack

You won't hear people complain that "it's not my job" in Granville County, North Carolina.

That's because anything that will improve the rural economy and standard of living is the job of the Granville County Rural Development Panel.

Forty public agencies and private organizations pool their resources through the panel, tackling everything from distributing rat bait to running a housing "fair."

"It's a good vehicle to get things done because almost all the government agencies and important business firms in the county are represented on the panel," said William J. Harrell, the Soil Conservation Service (SCS) district conservationist who served on the panel from its formation in 1970 until last spring, when he moved to Smithfield, North Carolina.

The 13 original panel members selected four areas of emphasis: protecting the environment; obtaining better housing; strengthening the economy; and improving public services.

They set both long- and short-range goals. The panel reviews its progress on the goals at monthly meetings. Accomplishments range from sanitary landfills to housing for the disadvantaged and elderly.

In the area of environmental quality, for instance, panel members

Trees form a windbreak and screen around Granville's new landfills, where a layer of soil covers each layer of trash.

The Granville Panel received the superior service award from the U.S. Department of Agriculture this year—one of the highest awards in the Department. The panel was recognized for its "imaginative and aggressive leadership in helping the citizens of Granville County protect their environment, obtain better housing, strengthen their economy, and improve the delivery of public services."

loaded 1,150 pounds of rat bait in their cars last year and delivered it to farmers and homeowners plagued by an increasing rat population. The year before, they launched Operation Big Crush. In that project, they rented a plane to pinpoint abandoned cars and—with help from more than 100 local leaders from 51 organizations—rounded up 9,000 junked cars and trucks. These were hauled to a plant 100 miles west in Kernersville for crushing, shredding, and recycling.

Thanks to the panel, the county now operates two sanitary landfills. Working through the Granville Soil and Water Conservation District (SWCD), SCS tested the soils, recommended sites to the Board of County Commissioners, and helped prepare engineering plans.

"Before the landfills opened about 2 years ago, people burned their trash in dumps. Old refrigerators, bedsprings, and anything else that wouldn't burn piled up in fields and streams," said George L. Taylor, current SCS district conservationist in Granville County.

SCS directed the cleanup, grading and seeding of the old dumps. Most of the land is now in grass and sericea lespedza, planted to control erosion and prepare the soil for eventual use as pasture.

The panel also sponsors semiannual land-use seminars for public officials and citizens. The goal: to stimulate planning in this county within 50 miles of both Raleigh and Durham. Planning and zoning, sedimentation, and the campaign for a progressive soil survey are among the topics covered. Professionals from SCS, Extension Service, state agencies, North Carolina State University, and other counties contribute ideas.

Under its public services program, the panel published two guides to services offered by tax-supported agencies in the county and a speakers guide. Some 35 agencies statewide have speakers available for local meetings.

To improve rural fire protection, the panel defined the area to be served by each of the county's 11 fire departments, most of which are volunteer companies. The panel also started a central switchboard for emergencies. By dialing 117, residents can reach fire departments, ambulance service, the rescue squad, or police and sheriff's departments.

For its economic development program the panel focused on forestry. Led by USDA agencies and industry foresters, the panel organized an Association of Forest Landowners. It also revitalized the

In this development, a gully (top) was shaped into a drainageway (bottom) and the area was seeded and mulched to comply with Granville's subdivision ordinance. (Bottom photo courtesy of The Oxford Daily Ledger)

Good management practices, especially site preparation and thinning, could double or even triple the average annual income of $11 per acre in the county.

Tree Farm Program begun in the early 1960's. To be recognized as a tree farm by the State Forestry Association, woodland must be managed according to a forestry plan developed with industry foresters, SCS, Extension Service, or other approved agencies.

Good management practices, especially site preparation and thinning, could double or even triple the average annual income of $11 per acre in the county, according to industry foresters on the panel. Small forest tracts cover 65 percent of Granville's 210,000 acres.

The forestry project got underway during the energy crisis in 1974 and eased two problems at once. At the suggestion of SCS technician B. J. Loyd, the panel offered firewood referral service. People willing to cut their own firewood were put in touch with landowners whose trees were marked for thinning.

"To get things moving" on a critical housing shortage, in 1971 and 1972, the panel held housing fairs in Oxford, the county seat. At that time, 37 percent of the county's housing was substandard. A modular home and mobile homes for families of limited resources were main attractions.

More than 50 firms displayed the latest materials and ideas in home construction and furnishing. An SCS exhibit stressed the importance of considering soils when building.

"The interest took us by surprise," said SCSer Harrell. "More than 15,000 people came—nearly double the population of Oxford."

The panel also helped organize the Oxford-Granville Housing Authority, which has provided 182 housing units for the elderly and disadvantaged in three communities. More than 850 new homes have been built, 375 mobile homes purchased, and 200 homes renovated through efforts of the panel and housing authority.

At the request of the Board of County Commissioners, SCS worked with Farmers Home Administration (FmHA) and Extension Service on an ordinance regulating subdivisions. The ordinance requires that soils be mapped and their limitations for urban uses be determined. It also requires the board of supervisors of the Granville SWCD to review subdivision plans.

"We plan some projects, like Operation Big Crash and the housing fairs, to rally the people and get things moving," Taylor said. "Some others, like the ordinance, have a more permanent effect even though they don't attract as much publicity."

"To get things moving" is a byword of the panel. Along with rallying projects, the panel sponsors tours. Some spotlight "forestry show windows"—examples of good woodland management; others feature farms and livestock operations. One was to see the plant that processed cars during Operation Big Crush.

Back home in Oxford, Billy L. Price, FmHA county supervisor, summed up the feelings behind the panel. "My job is to make and service loans," he said, "but through the efforts of the panel, we can do things that help the whole community—things that otherwise might not get done."

Ms. Zack is a staff writer, SCS, Information Division, Washington, D.C.

Bill Harrell (left) and George Taylor check trees marked for selective harvesting. The rural development panel designated this tree farm as a "forestry showcase" and features this spot as an example of good woodland management on its forestry tours.

Erosion: Today's Soil, Tomorrow's Silt

by Vernon Reinert
and William P. Oemichen

The specter of erosion threatens 4 out of 10 acres of Minnesota cropland. Here's how federal and state agencies plan to correct this problem.

We cannot stop sedimentation completely, but we can reduce it by reducing erosion to limits that are not harmful to our society.

On a wintry day, snirt (snow and dirt) forms intricate pattern on snowdrift in southwestern Minnesota near Lakefield.

The life-support system for any body of water is its watershed. From this high land, trickles and driblets and flows of water replenish a stream, river, or lake. How ironic it is, then, when a watershed kills the body of water it supports!

Eroded soil—from croplands, forests, highways, and stream and riverbanks—is the culprit. Once it gets into a river or lake, it becomes sediment, the major pollutant of Minnesota waters.

"Many people are surprised to hear that sediment is such a severe water pollutant," says Harry M. Major, state conservationist for the Soil Conservation Service (SCS) in Minnesota. "The pollution is so great because of the sheer volume of land that drains into a body of water. Hundreds of thousands of tons of sediment flow into lakes and streams every year. We cannot stop sedimentation completely, but we can reduce it by reducing erosion to limits that are not harmful to our society."

A 1971 inventory of conservation needs in Minnesota conducted by the SCS indicated that 9 million acres, 39 percent of Minnesota's cropland, is subject to erosion by either wind or water.

Each year, soil losses in Minnesota total about 30 million tons, the equivalent loss of 1 inch of topsoil on 670 average-size Minnesota farms.

But much more than soil is lost when erosion occurs. In 1975, the U.S. Senate Committee on Agriculture and Forestry estimated that, nationwide, some $1.2 billion worth of nutrients are lost each year. The figure is based on the 1974 market value of the fertilizer it takes to replace lost nutrients. (Loss of nutrients also wastes energy because manufacturing fertilizer requires large quantities of energy.)

Charles Clark of rural Lake City had an erosion problem on the farm he bought 3 years ago. His erosion was exceptionally severe, but it illustrated how vulnerable the land was when it was not protected from the elements.

The sloping land had been planted with corn and beans for 10 years before Clark bought it. The rills in the fields were 6 inches deep, 3 inches wide, and 250 feet long. In one cornfield, they scored every row.

"That soil had to go somewhere," Clark recalls.

Much of it washed away as sediment. In fact, a small pond on the farm was completely silted in. After one rainstorm, Clark had to use a bulldozer to clean silt out of a ditch near his driveway.

Streambanks and lakeshores are a significant source of sedimentation. In fact, in southern Minnesota where slopes are relatively short, streambank erosion contributes more sediment to the water than does erosion from the uplands.

In addition to agricultural land, roadsides, urban and industrial developments, and urban watersheds can become other major sources of sedimentation.

To see the nation's waters clean, Congress has required controls to prevent eroded soil—no matter what the source—from becoming a water pollutant. Under the Water Pollution Control Act Amendments of 1972, erosion and other forms of runoff are considered "nonpoint" sources of

pollution. Each state must develop plans and programs for their control by 1983.

Federal funds from the Environmental Protection Agency (EPA) are available to states to help finance planning. SWCDs, SCS, and the Minnesota Soil and Water Conservation Board (MSWCB) have agreed to work with the Minnesota Pollution Control Agency (MPCA) in this planning effort.

The law requires a water-quality planning process which will identify nonpoint sources of pollution and the extent to which they are harming water quality.

Open sewer pipes or malfunctioning septic tanks are "point" sources of pollution. But pollutants from nonpoint sources drain off many acres that make up the watershed, streambank, or shoreline. Contributing to nonpoint sources are tillage, pasturing techniques, fertilizers, pesticides, herbicides, manure, feedlot management techniques, and home construction.

Once pollution sources are identified, the next step required by the Water Quality Act is to decide on what EPA calls the "best management techniques" to minimize pollution from nonpoint sources.

Defining and controlling nonpoint pollution sources are a new and unfamiliar task for most local and state agencies. On the other hand, SWCDs have been working with erosion problems for nearly 40 years.

Minnesota's 92 SWCDs are legal entities of state government. They were created to help landowners solve their soil and water problems. The districts receive technical and financial support from various federal, state, and local agencies. These agencies include the Agricultural Stabilization and Conservation Service and SCS of the U.S. Department of Agriculture; the Agricultural Extension Service of the University of Minnesota; the state Soil and Water Conservation Board; the State Department of Natural Resources; and county boards of commissioners.

Working through their local SWCDs, some 63,000 Minnesota landowners have applied conservation practices for erosion control of their

Each year, soil losses in Minnesota total about 30 million tons, the equivalent loss of 1 inch of topsoil on 670 average-size Minnesota farms.

Top: Severe roadside and streambank erosion on red clay soils is evident throughout Nemadji River watershed in Carlton County west of Duluth, Minnesota. Bottom: Aerial view of Nemadji River shows dark cloud of sediment flowing into Lake Superior at Superior-Duluth harbor. The Carlton County Soil and Water Conservation District is attempting to find a solution to this vexing problem.

Nearly half the state's tillable cropland is worked by landowners who cooperate with SWCD erosion-control policies.

Hundreds of thousands of tons of sediment flow into Minnesota lakes and streams each year. Erosion may occur along streambanks, along shorelands under development, along sheer edges of drainage ditches, or wherever straight-line planting of crops allows erosion of soil into water areas. In southern Minnesota, where slopes are relatively short, streambank erosion contributes more sediment than does erosion from the uplands.

land. Nearly half the state's tillable cropland is worked by landowners who cooperate with SWCD erosion-control policies.

SWCDs are not well known, except by the landowners who work with them. Most people in soil and water conservation programs believe that SWCDs must play an integral part in the sedimentation aspects of non-point pollution control planning. They believe that today's conservation practices—evolved through research and trial-and-error over 40 years—are effective pollution control measures, but they need to be strengthened and better financed for the state to fulfill many of its water quality responsibilities.

The Minnesota Association of Soil and Water Conservation Districts, an organization of the state's 92 districts, stated that districts should have authority "to plan, implement, and regulate the control on nonpoint pollution" in Minnesota.

According to association president LeRoy Swenson, "The districts are prepared to work with state-designated agencies to accumulate non-point pollution data, to prepare pollution control plans, and to participate in carrying out future necessary regulations."

MSWCB chairman Clarence Ettesvold says that "the Board can facilitate district involvement in the program by entering into contracts with the Minnesota Pollution Control Agency to secure the funds districts would need to participate in planning, implementation, and regulation." The board presently administers the state portion of the funding of conservation district activities.

Conservation district efforts to control roadside erosion in Douglas County show what districts can do.

A survey of the county's roadsides pinpointed about 450 sites where soil eroded off roadsides into lakes, streams and fields. Seventy-seven sites were classified as severe, and improvements were designed. Most were seeding projects, but structures to divert water and control flow were planned for some severely eroded sites.

Costs for these improvements were shared among the county board,

Some combination of crop residue management and minimum tillage is needed for erosion control on about half the state's cropland.

landowners, and the WesMin Resource Conservation and Development area. Such cost sharing is available only when an SWCD is a legal sponsor of a project.

Julian Loken, chairman of the Douglas County SWCD, believes the project "illustrated that the conservation district is interested in erosion problems from such areas as roadsides as well as farm-related causes, and can work effectively with a variety of groups to solve overall resource conservation problems."

"Traditional conservation practices such as contouring, stripcropping, and grass waterways are very effective in controlling runoff and erosion from sloping land," states the SCS's Harry Major. "And some newer practices, such as minimum tillage and feedlot pollution-control systems, are proving to have direct water quality benefits. The immediate concern is that landowners need more cost sharing and technical assistance so they can accelerate application of these important erosion-control and water-quality practices."

Some combination of crop residue management and minimum tillage is needed for erosion control on about half the state's cropland, according to Major. Only about 10 percent of that potential has been reached. Three years ago, however, minimum tillage was being practiced on only 1 percent of cropland that needed it.

About 30,000 agricultural waste management systems are still needed, but Minnesota leads the nation in attempts to keep feedlot runoff out of lakes and streams (about one-third of these systems in the U.S. are in Minnesota).

Minnesota now has more than 1,000 agricultural waste management systems installed. Peter Gove, MPCA executive director, said that his agency's approval of the landmark 1,000th permit was a milestone in the state's effort to control animal waste pollution.

Nonpoint pollution control efforts in Minnesota will include a feedlot inventory to determine the extent to which livestock operations near lakes and streams are a pollution hazard. The inventory will be conducted by SWCDs through grant money from the Minnesota Soil and Water Conservation Board. The Board will carry out nonpoint pollution control planning in Minnesota, with funding from the Pollution Control Agency, which is the agency designated to coordinate nonpoint pollution control planning in the rural areas of Minnesota.

The Pollution Control Agency is now putting together the work plan for nonpoint in Minnesota. When that is complete this fall, funding will be available and nonpoint pollution control planning will begin. The price tag could range from $1 billion to $2 billion for bringing into allowable limits nonpoint pollution from streambanks, roadsides, feedlots, farmland, and other sources. The goal for Minnesota: Unmatched water quality in lakes and streams that will continue to enhance Minnesota's unexcelled quality of life.

Mr. Reinert is executive secretary, Soil and Water Conservation Board, Minnesota Department of Natural Resources, St. Paul, Minnesota.
Mr. Oemichen is SCS assistant state conservationist, St. Paul, Minnesota.

The article appeared in the March-April 1976 issue of The Minnesota Volunteer, published by the Minnesota Department of Natural Resources, and is reprinted here with permission.

"Tagging" Funds For Education

by Crystal A. Williams

Personalized license plates are providing financing for environmental education programs in California. Income from the $25 fee for personalized tags goes into the state's License Plate Environmental Protection Program, which has a 1976-77 proposed budget of $4.5 million. Of this, $400,000 is budgeted for environmental education.

Grants available for environmental education are for teacher education, curriculum and materials development, capital outlay, and summer intern programs.

Various agencies and institutions are eligible for the grants, including natural resource districts, school districts, cities, counties, and public colleges and universities with teacher education programs. State funds must be matched by local funds or materials and services.

The Evergreen Resource Conservation District and the San Jose Unified School District in Santa Clara matched funds last year to help the nonprofit Youth Science Institute acquire a state grant of $4,922 for conservation education.

With the nearly $10,000 total, the Institute is developing a learning package to teach the urban child the need for good conservation practices within urban areas. The package includes a slide presentation; a discussion guide; lesson plans; 225 hours of elementary classroom instruction; 75 hours of junior high classroom instruction; and 104 hours of teacher inservice conservation lessons.

The environmental education grants are awarded by the state superintendent of public instruction.

Ms. Williams is SCS public information officer, Davis, California.

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by John George

Restoration in Endless Mountains

In northeastern Pennsylvania, RC&D has been involved in historical restoration—from a two-story log cabin built for Marie Antoinette to protection of Wyalusing Rocks overlooking the Susquehanna River to the creation of a state park around springs that once were a major source of salt for Indians

It's not hard to find things worth preserving in northeastern Pennsylvania.

Covered bridges, an old mill village, and a refuge built for a queen are among the restoration measures tackled by the Endless Mountains Resource Conservation and Development (RC&D) Council in Pennsylvania.

"RC&D usually looks to the future, but in this case, we have a great heritage, and RC&D can play a role in preserving that heritage," says Howard Miller, chairman of the RC&D area that includes five counties, 4,000 square miles, and 150,000 people.

The RC&D council consists of 10 people: five conservation district

directors and five county commissioners.

Miller, who also is chairman of the Wyoming County Conservation District, credits the success of the many historic restoration projects in the area to public participation.

Old Mill Village in Susquehanna County, for instance, is today a thriving operation run by local craftsmen and owned by the state.

"But this area looked like it would fold financially a few years ago when it was a private, nonprofit development," Miller said.

"Our RC&D coordinator at the time assisted local citizens in convincing the State Historical and Museum Commission to buy the property."

The restored village includes an old mill site, dating to the 1830's, a mill pond, and buildings where such crafts as harness making, needlepoint, and rugmaking are continued today. The original village was on a turnpike route and many settlers passed through on their way west.

"We had the same sort of involvement when Salt Springs went up for sale," Miller said.

"An RC&D council member and two carloads of local people, again supported by the former RC&D coordinator, went to the state capital to meet with local legislators.

"With an assist from the Nature Conservancy, Salt Springs is now a 450-acre state park, the first in Susquehanna County."

Historically, deposits at the springs were a major source of salt for Indians and for early settlers. Today, the park features the Springs, a glen, stream, waterfalls, and a stand of hemlock more than 600 years old.

One of the more unusual projects RC&D has been involved in is French Azilum, a community founded in 1793 by immigrants fleeing the French Revolution. Plans are underway to restore this Pennsylvania historic site. The abandoned village includes reproductions of several log homes. The goal is the reconstruction of the two-story log cabin built in hopes

An unusual RC&D activity is restoration of the French community of Azilum, founded in 1793 by immigrants fleeing the French Revolution . . . the goal is the reconstruction of a log cabin refuge for Marie Antoinette.

that Queen Marie Antoinette could escape to this community on the banks of the Susquehanna River.

RC&D has worked closely with many individuals and organizations in resource programs in the multicounty area, including township supervisors, borough councilmen, conservation and recreation groups, the Northern Tier Regional Planning and Development Commission, the League of Women Voters, and the Endless Mountains Association, which promotes tourism in the area.

Together, they've participated in:

—Restoration of three covered bridges in Sullivan County. One was on a main state route and was restored by the state highway department; a second took a special bill in the state legislature; a third was restored with county revenue sharing funds.

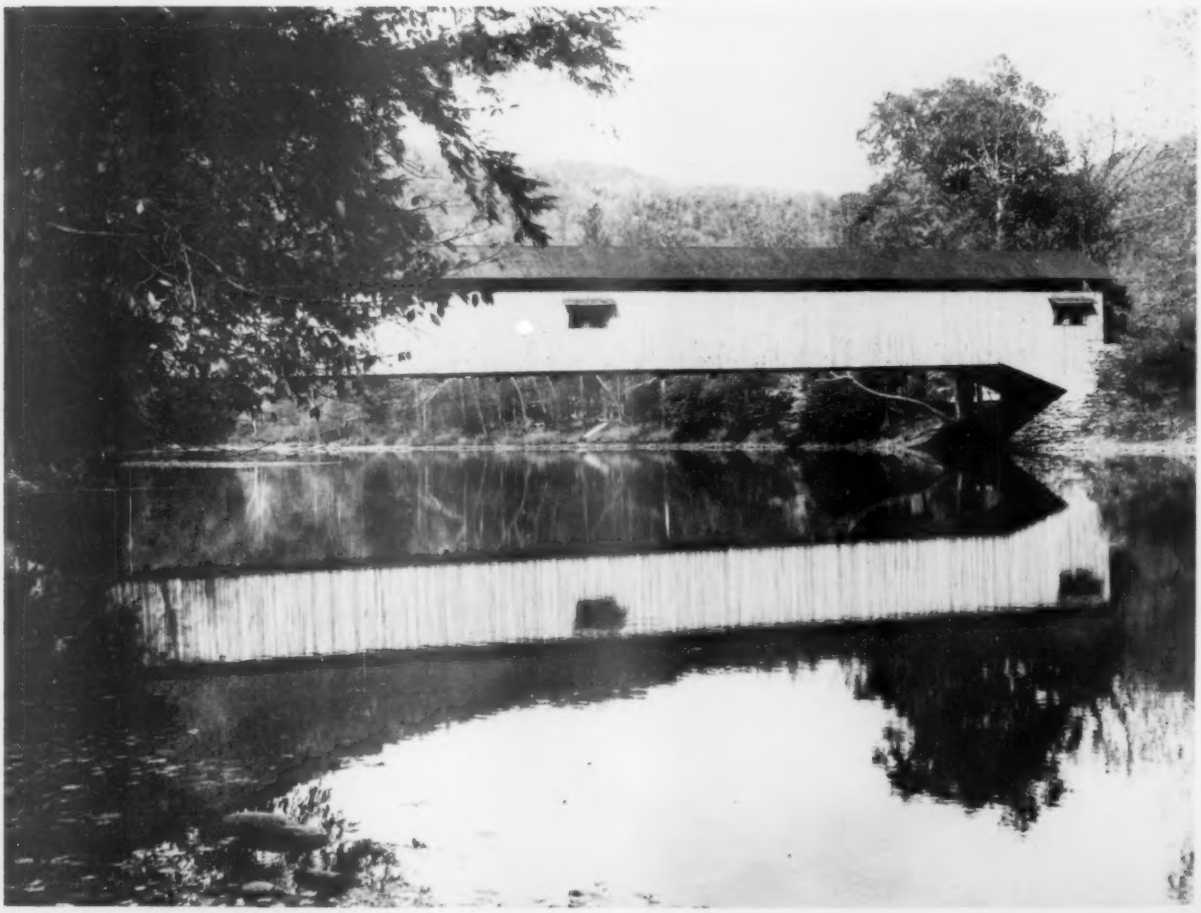
—Restoration of a one-room schoolhouse, built in the 1860's. When money was not available to fix it up, the late Carlton Birchard, an RC&D councilman, organized a work crew; businessmen donated materials; and local people donated articles that had been used in the school. It is now open as a museum.

—Historical recognition and marking of the Milford-Owego Turnpike. Completed in 1822 at a cost of less than $100 a mile, it was the first direct route from New York City to northern Pennsylvania and south-central New York.

—Relocation of two planned highways to preserve a sacred Indian burial ground and Wyalusing Rocks, which provide a scenic view of the Susquehanna River and Bradford County today and were Indian lookout points in yesteryear.

"These weren't just RC&D," Miller said. "There was a lot of local support. That's what RC&D is all about."

Mr. George is RC&D coordinator, SCS, Endless Mountains Resource Conservation and Development Area, Towanda, Pennsylvania.



Northeastern Pennsylvania shows the marks of historical activities of the Endless Mountains RC&D. Left: Two of the covered bridges being restored in Sullivan County. Top: Old Mill Village, owned by the Commonwealth of Pennsylvania and operated by local residents and craftsmen. On preceding pages historic Wyalusing Rocks, high above the Susquehanna River. In the path of highway construction they were doomed until citizen protests led to a change in the highway route.

Prairie Wildflowers on the Horizon

Once covering the prairies, native wildflowers are coming back, this time with the help of man.

by Jeffrey K. Butcher

On a cool Nebraska spring morning Omaha Indian Chief Blackbird led a buffalo hunting party along the Platte River.

As the party moved through the open prairies, native grasses shifted with the breeze, creating a smooth wavy pattern.

Recent rains had caused the grass to shed its brownish tint for green. A Great Plains tapestry was taking

It'll be a while before you can buy the seed, but these native wildflowers are well on their way into production to control soil erosion and to restore and beautify pastures, rangelands, and roadsides in the Midwest. Clockwise, from bottom: 'Eureka' thickspike gayfeather, 'Nekan' pitcher sage, and 'Kaneb' purple prairieclover.

"Midwest travelers and residents may soon see an abundance of wildflowers as magnificent as those described by the early American pioneers on their journeys west."

form with colorful native wildflowers —blues, yellows, purples, and whites —woven into a natural background of grasses.

Two thousand miles due east the white man was locked into the American Revolutionary War, which would, in time, have a profound influence on the environment of the Great Plains.

In a hundred years, the Omaha Indians' numbers would dwindle as homesteaders moved in. As they turned the sod, tilled the soil, killed the buffalo, and brought in longhorns, the Nebraskans also destroyed the various wildflowers that were endemic to the prairies.

It took another century before native wildflowers would be reestablished by the descendants of those settlers.

Last January, the Midwest's first certified varieties of native wildflowers were released after 10 years of cooperative tests by the Soil Conservation Service (SCS), the Kansas and Nebraska State Agricultural Experiment Stations, and the Nebraska Department of Roads. The plants will not only provide erosion control on public and private lands, but also enhance community, roadside, and rangeland beauty.

These three domesticated wildflowers are 'Kaneb' purple prairieclover, *Petalostemum purpureum;* 'Nekan' pitcher sage, *Salvia azurea* var. *grandiflora;* and 'Eureka' thickspike gayfeather, *Liatris pycnostachya.* The names of 'Kaneb' and 'Nekan' were derived from the states where the selected accessions were developed, Kansas and Nebraska. 'Eureka' was named for Eureka, Kansas, where the thickspike gayfeather was collected that was eventually selected. Their combined blooming seasons span nearly 3½ months, from mid-June to late September.

The SCS Plant Materials Center at Manhattan, Kansas, will produce and distribute foundation seed to selected seed growers this fall. If good growing conditions prevail, seed growers should have limited quantities available in the fall of 1978. The University of Nebraska Field Laboratory at Mead will maintain the breeder seed.

"We felt wildflowers could be important not only for their esthetic appeal, but also because some of the native legumes could help to revitalize the soil," said Peter N. Jensen, SCS state range conservationist in Lincoln, Nebraska.

"We felt we were missing something by not using wildflowers. Grass is beautiful in itself, but travelers going through the state might think it is blah."

Plant specialists ran into several obstacles, though.

"We had no guidance or experience on how to approach seed production, needed fertility, what kind of fertilizer could be used, and how much available moisture would be necessary," said Robert Lippert, SCS plant materials specialist in Manhattan. "We had to learn." Nearly 20 evaluation plots were established: on the Manhattan Plant Materials Center; at SCS field offices in Kansas, Nebraska, and South Dakota; at the University of Nebraska Field Laboratory at Mead; and along Nebraska highways.

From 1972 through 1974 the three varieties were monitored to establish seed yield per acre, germination, purity, and number of seed per pound. Several accessions were used. The varieties were also checked for height, width, number of flowers, length of flowering period, seed set, and disease resistance.

"For a plant to be considered for the program," said Dr. Sotero Salac, University of Nebraska horticulturist, "it must not be a noxious weed since it would be in public use areas; it must not be poisonous; and it should be edible to livestock and wildlife.

"It also should have a good root system to prevent soil erosion, and it must associate or compete with other vegetation," Salac remarked.

'Kaneb,' a native legume, has the capability of fixing nitrogen into fertility-depleted areas and is good forage for animals. It grows best in Nebraska, Kansas, Oklahoma, New Mexico, Colorado, Wyoming, and portions of Iowa and Missouri.

'Nekan' is a bushy plant with blue flowers that resemble snapdragons. It helps strengthen prairie grazing lands and serves as feed for wildlife. It can be best established in Nebraska, Iowa, Kansas, Missouri, and Oklahoma.

A tall, spike-like lavender-flowered plant, 'Eureka' can add beauty to gardens, highway corridors, and lowland meadows. It thrives in Nebraska, Iowa, Kansas, Oklahoma, and Arkansas. It can survive with little or no additional water and fertilizer.

"Midwest travelers and residents may soon see an abundance of wildflowers as magnificent as those described by the early American pioneers on their journeys west," summed up SCS Administrator R. M. Davis earlier this year. "At the same time, the wildflowers, when mixed with native grasses, will provide superior, self-sustaining protection against soil erosion along highway roadbanks."

Mr. Butcher is SCS public information officer, Lincoln, Nebraska.

Pioneers in GPCP

by Russell Christianson

Nineteen years ago, the Sackmans of Streeter, North Dakota, were among the first in the nation to sign a contract under the Great Plains Conservation Program. A look at their farm today shows their continued "putting into practice" their belief in conservation.

"I believe wind and water erosion on this place is as near zero as it's possible to make it."

That comment comes from one of the first signers of a Great Plains Conservation Program (GPCP) contract, Berthold Sackman of Streeter, North Dakota. Sackman and his wife Shirley signed one of the three first GPCP contracts on December 19, 1957.

Administered by the Soil Conservation Service, the Great Plains Conservation Program is designed to solve problems in the Great Plains resulting from drought and cultivation of land not suited for sustained crop production.

The Sackmans entered into the GPCP contract soon after buying their 1,280-acre farm. They paid about $16 an acre. The improvements they've made since have helped increase the value fivefold.

With technical assistance and cost sharing provided, they corrected poor grazing distribution on the farm. During their 3-year contract, they put in six stockwater ponds and 2 miles of crossfencing to rotate pastures and distribute grazing. They planted a 10-row farmstead windbreak to protect their home and livestock.

"We've never destroyed a single soil-saving project that we cost shared," Sackman says.

They decided to reseed the cropland shortly after they bought it—the soil survey showed most of the land was better suited to grassland agriculture.

"We didn't think it was intended for crop farming when we bought it," Sackman said. The previous owner had a mixed cash grain and livestock operation.

Deciding the land could carry a herd of 100 cows if provided some supplemental feed, they built the herd to this number by the time the newly seeded grass was ready for grazing.

Since then, they've added 600 more acres of hay and rangeland and built their beef herd to 170 cows, all purebred registered Sax Herefords. Sackman's annual bull sale attracts buyers from several states. Their original stock was mostly good grade

Hereford cows and purebred Hereford bulls.

Shirley Sackman, a part-time teacher in Streeter, comments that her husband knows every one of their 350 cows, calves, and bulls—and knows the number of the ear tag each carries.

"Sometimes in the warmer months, Bert will ask me to ride out and bring in such-and-such a number," she says. "I go out there and search all over the place. Bert can go out and spot the animal right away, as if its number was painted in big numerals on its side."

The Sackmans, cooperators with the Stutsman County Soil Conservation District, long ago lost their "status" as the only GPCP signers in the county.

To date, 150 farmers there have signed up with the program and are carrying out improvements on their land. They continue to honor "one of their own," however, as a pioneer in a conservation program.

Mr. Christianson is SCS district conservationst, Jamestown, North Dakota.

Conservation and Farm Broadcasters

North Dakota conservationists were on the air all over the Midwest in June following the Midwest regional meeting of the National Association of Farm Broadcasters in Fargo.

During the meeting, broadcasters from 10 Midwestern states taped interviews with members of the North Dakota Association of Soil Conservation Districts. The association sponsored a breakfast for the broadcasters at which members discussed soil and water conservation problems, activities, and opportunities in the state.

The broadcasters also spent a day on bus tours covering farming and conservation in Cass County. Guides were from the Soil Conservation Service, Extension Service, and Agricultural Stabilization and Conservation Service.

Mantle of Manure

by Shiraz Vira

Farmers in eastern Idaho are getting double duty from the application of liquid manure.

They've long used it for fertilizer, but in the last few years have discovered it—and spread it—as a means to control wind erosion.

"It absolutely stops wind erosion during the early spring, even on the sandiest of soil," says Nile Wilding, chairman of the Mud Lake Conservation District north of Idaho Falls.

The liquid manure—obtained free from nearby dairy farms and feedlot operations—forms a strong bond with the soil as it drys.

"When that cold, icy wind starts blowing at 35 miles an hour on newly leveled ground, it's the only thing that will hold the sand in place," comments Zeke Ward, a farmer in Treeton in Jefferson County.

The manure is used both on newly prepared fields, and on newly seeded ones. Grain and hay seedlings emerge easily through the mantle of manure unless an excessive application has been made. The manure prevents seeds from blowing away, conserves moisture, and raises the soil temperature resulting in earlier germination.

The only problem, comments area farmers, is finding enough to go around.

Mr. Vira is SCS soil conservationist, Rigby, Idaho.

Once the sun dries it out, liquid manure forms a strong bond with the soil and protects it from wind erosion. As long as not too much has been applied, grain and hay seedlings easily emerge. The manure protects them from blowing away, conserves moisture, and raises the soil temperature.

Banking on Rangeland

by Dain Root

Ever have to explain grazing systems, crossfencing, and range seeding to a lender as you apply for a loan for range improvements? Nebraskans are taking a short cut . . . with a short course.

Ranchers know that conservation practices pay, but seldom right away.

To spread that awareness, Nebraskans are organizing workshops on range management for bankers and other agricultural lenders.

In a day's time, they better acquaint lenders with conservation districts and conservation plans and practices such as proper use and grazing systems.

Lenders need to know—in arriving at repayment plans—that the range improvement from crossfences, water developments, and grazing systems may be several years in coming. Some lending institutions have "deferred interest" loans on which the rancher does not pay interest until the practice begins to yield a return.

Lenders also need to understand why biggest is not necessarily best. Traditionally, they have loaned money to ranchers by taking cattle as collateral. The more stock a rancher owned, the more money he could borrow. These sessions show why too many cattle on rangeland is just as uneconomical as too few.

It is especially important to Nebraska's natural resources that lenders understand the value of good range management. Agricultural loans are a $1 billion business in the state. Cash receipts from livestock sales last year totaled $1.5 billion, and the number of cattle and calves totaled more than 6.5 million as of January 1.

Peter N. Jensen, SCS state range conservationist, is one of the leaders in the workshops, whose sponsors include SCS, Nebraska's natural resource districts, and the Society of Range Management.

"In providing the necessary capital, banking and lending agencies play a big role in resource development and operations," Jensen notes.

"Credit is one of the keys to the success or failure of ranch operations in using, developing, and protecting native pastures."

At a recent session in O'Neill, SCS district conservationist Bob Lowe participated in a morning session covering range conditions; plant physiology; range economics; USDA conservation cost-share programs; and range management and improvement practices such as seeding, proper grazing use, and planned grazing systems.

In the afternoon, the lenders visited a nearby ranch, gathering onsite information on such topics as plant identification, range condition evaluation, and planned grazing systems.

Nebraska ranchers are finding the workshops are giving lending institutions the background to make realistic loans based on an owner's ability to manage his grassland at a profit—a profit to the land, the rancher, and the lender.

Mr. Root is SCS area conservationist, Broken Bow, Nebraska.

Altoona Mountain Restored

by Samuel H. Geiger

Surface mining operations for coal left this land in northeastern Alabama barren and eroding. Stream channels were filling with sediment and fields, roads, and homes were being flooded.

When everyone from the coal company owner to the mayor pitched in, it didn't take long to control erosion caused by surface mining on Altoona Mountain.

You might say they stopped a mountain from moving.

Runoff from surface-mined Altoona Mountain in northeastern Alabama had been filling stream channels with sediment and causing flooding and silt damage to fields, roads, and homes below the mountain for years.

Then the mayor of Altoona, a county commissioner, the Soil Conservation Service district conservationist, and the owner of the coal company got together.

A plan was developed between the Etowah County Commissioner, the Etowah County Soil and Water Conservation District, and the coal company owner, who was a district cooperator.

Because reclamation of the area would result in community benefits, the Coosa Valley Resource Conservation and Development Council provided technical and financial assistance for establishing vegetation.

Davis Robbins, coal company owner, began smoothing and preparing the spoil banks for revegetation in June 1972.

For the next 4 years, a bulldozer worked nearly full time on the project.

Of the 600 acres surface mined on Altoona Mountain over the last 30 to 40 years, 400 acres have been seeded to sericea lespedeza and weeping lovegrass on the more level areas. These grassed areas are now well established and will be used for seed production and livestock grazing.

Loblolly pine seeds were broadcast by helicopter on the 200 acres of steep back slopes. In several years the pines will be large enough to provide needed erosion control.

Road and street maintenance along the streams already has been drastically reduced.

Robbins also planned a 100-acre orchard, of which 20 acres are now planted to apples, peaches, grapes, and blueberries.

Four small lakes serve as settling basins and a 17-acre lake is used for fishing in the mined area. Wildlife food and cover have attracted bobcats, a cougar, wild turkeys, and quail.

During a visit to the mined area, I remember noticing the land was being smoothed more than it usually is for stabilization. I commended Robbins on the good job, noting that he was doing more than was needed to meet minimum specifications.

His reply: "Sam, I want to fix this place up before I pass on so people won't say 'Davis Robbins came in and got all he could and left the place in a mess.' "

Mr. Geiger is SCS district conservationist, Gadsden, Alabama.

Opening the Classroom Door

by F. Dwain Phillips

If you want students to appreciate the outdoors, reasons an Oklahoma professor, you have to get the teachers involved in outdoor activities themselves. Here's how he's done it.

Sixty teachers who spent 4 weeks on environmental studies in Oklahoma this summer were truly inspired to start outdoor classrooms at their schools.

The inspiration was provided by Dr. Don Kellogg, who taught the session. He gave each teacher a grade of "Incomplete" until work on outdoor classrooms started.

"The only way to get teachers to take their students outdoors is to get the teachers involved in outdoor activities themselves. That is what the course is designed to do," said Dr. Kellogg, director of the Science Education Center at East Central University at Ada.

The first 2 weeks were spent at three centers—Ada, Stillwater, and Tulsa. Classwork included curriculum analysis, development of lesson plans, earth science, and conservation. The teachers spent the final 2 weeks at Camp Goddard learning more about canoeing, camping, backpacking, fishing, and photography. The studies ended with a day in the field with 14 SCS district conservationists, putting the final touches on outdoor classroom plans.

Learning experiences varied. The teachers inventoried "eco-plots" and recorded changes in plant and animal life daily for 2 weeks. They used soil surveys to help locate clay soils which then were fashioned into pots, bowls, and other "objets d'art."

In addition to Dr. Kellogg, instructors included Dr. Ted Mills at Stillwater and John Roller at Tulsa. Resource specialists from the Forest Service, Oklahoma Department of Wildlife Conservation, and SCS provided technical help.

Of the 60 teachers enrolled in the course, 57 were on scholarships provided by various conservation districts and the Oklahoma Conservation Commission. Last year, 20 of the 26 teachers enrolled were on district scholarships.

After taking the course, 21 of the 26 teachers have inaugurated conservation and environmental studies in their schools; 15 new outdoor classrooms are underway.

One member of the 1975 class, Dan Sebert, gave up teaching to become a conservation education specialist. He now is employed by the Oklahoma Conservation Commission, working with districts and teachers throughout the state.

Mr. Phillips is SCS public information officer, Stillwater, Oklahoma

Backpacking . . . overnight camping . . . making pottery from clay found through a soil survey were "classwork" for teachers studying conservation education.

Reviews

Untaxing Open Space.

By the Regional Science Research Institute for the Council on Environmental Quality. 1976. 401 pp., illus. Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 $5.40 full report; $0.45 for the Executive Summary.

This report evaluates the effectiveness of the state statutes authorizing differential assessment of farmland and open space lands. Well written and well documented, it should serve as a standard reference on the subject. Detailed analyses of nine states are included in the full report. A short summary is also available.

Differential assessment laws are now in effect in 42 states to ease the property tax burden on farmland and open space. This report evaluates the strengths and weakness of the three different approaches these laws take: preferential assessment, deferred taxation, and restrictive agreements.

The basic problems which gave rise to these laws are the inequity of real property taxes levied on speculative market values rather than actual current use values and the difficulty of preserving productive agricultural lands and open spaces for food and fiber production and for esthetic enjoyment.

The report concludes that differential assessment laws, in general, work well to reduce the tax burden on farmers and owners of open space. However, acting alone, they are not very effective in preserving agricultural uses and open space. Additional land use control programs by state and local governments are needed to solve the agricultural and open space preservation problems.

—Warren T. Zitzmann, SCS community planner, Washington, D.C.

Meetings:

October

2–5	Farm and Industrial Equipment Institute Convention, Boca Raton, Fla.
2–6	American Bankers Association, Washington, D.C.
3–8	Water Pollution Control Federation, Minneapolis, Minn.
12–15	Annual Meeting of the Hardwood Plywood Manufacturers Association, Toronto, Canada
14–17	National Association of Biology Teachers, Inc., Denver, Colo.
17–20	American Forestry Association, Disney World, Fla.
17–21	National Recreation and Park Association, Boston, Mass.
18–20	American Plywood Association Industry Meeting, Biloxi, Miss.
23–27	National Environmental Sanitation and Maintenance Educational Conference and Exposition, Boston, Mass.

November

7–10	National Forest Products Association, Scottsdale, Ariz.
7–10	Sprinkler Irrigation Association Convention, Newport Beach, Calif.
8–9	Fifteenth Annual Purdue Air Quality Conference and Exhibition, Indianapolis, Ind.
8–11	Geological Society of America, Denver, Colo.
8–15	The National Grange 110th Annual Session, Atlantic City, N.J.
9–12	Future Farmers of America, Kansas City, Mo.
14–17	National Association of State Universities and Land Grant Colleges, Washington, D.C.
14–18	National Association of State Departments of Agriculture, Phoenix, Ariz.
15–17	American Association of State Highway and Transportation Officials, Birmingham, Ala.
16	American Seed Trade Association, Inc., Kansas City, Mo.
18–22	Adult Education Association of the U.S.A., New York, N.Y.
24–27	National Council for Geographic Education, San Francisco, Calif.
28–30	American Society of Farm Managers and Rural Appraisers, St. Louis, Mo.
28 Dec 1	World Wildlife Fund Fourth International Congress, San Francisco, Calif.
28 Dec 2	American Institute of Chemical Engineers, Chicago, Ill.
28 Dec 3	American Society of Agronomy, Crops Science Society of America, and Soil Science Society of America Joint Annual Meeting, Houston, Tex.

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